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Duncan Bain

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BRADLEY N. RUBEN  
503 MITCHELL COURT  
CHAMPAIGN, IL 61821-3535

EXAMINER

LIU, JONATHAN

ART UNIT

PAPER NUMBER

3673

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/580,086	<b>Applicant(s)</b> BAIN ET AL.	
	<b>Examiner</b> JONATHAN J. LIU	<b>Art Unit</b> 3673	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 April 2010.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-13, 16-22 and 26-39 is/are pending in the application.
- 4a) Of the above claim(s) 29-30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13, 16-22, 26-28 and 31-39 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 April 2010 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input checked="" type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

***In response to remarks filed 4/26/2010***

### ***Status of Claims***

- ***Claims 1-13, 16-22, and 26-39 are pending;***
- ***Claims 1-13, 16-22, and 26-27 are currently amended; claims 28-39 are newly presented; 29-30 are hereby withdrawn;***
- ***Claims 1-13, 16-22, 26-28, and 31-39 are rejected herein.***

### ***Response to Arguments***

1. Applicant's arguments with respect to claims 1-27 have been considered but are moot in view of the new ground(s) of rejection.

### ***Election/Restrictions***

2. Newly submitted claims 29-30 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: the originally filed claims were directed to an apparatus (e.g. mattress protector). New claims 29-30 are drawn to a method of monitoring and a method of installing - the apparatus as claimed can be used by another materially different method (as evidenced by the two different claimed methods). Thus, the claims are withdrawn as being directed to a non-elected invention.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 29-30 are withdrawn from consideration

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as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

### ***Oath/Declaration***

3. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

It is unclear whether Sarah Nicholson, "widow of Graham Nicholson and inheritor of his rights," is in fact the legal representative, executor, or administrator of the deceased inventor (Graham Nicholson). Such title should be explicitly stated in the Oath/Declaration.

### ***Drawings***

4. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore *thermochromic strip* must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for

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consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

5. The drawings are objected to because: see attached form PTO -948. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

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6. Color photographs and color drawings are not accepted unless a petition filed under 37 CFR 1.84(a)(2) is granted. Any such petition must be accompanied by the appropriate fee set forth in 37 CFR 1.17(h), three sets of color drawings or color photographs, as appropriate, and, unless already present, an amendment to include the following language as the first paragraph of the brief description of the drawings section of the specification:

The patent or application file contains at least one drawing executed in color. Copies of this patent or patent application publication with color drawing(s) will be provided by the Office upon request and payment of the necessary fee.

Color photographs will be accepted if the conditions for accepting color drawings and black and white photographs have been satisfied. See 37 CFR 1.84(b)(2).

***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 1 and 26 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The originally filed disclosure papers do not provide support for “a shielding cover...that is impermeable to body fluids...” – the originally filed disclosure papers only provide support for a “substantially liquid impermeable” – see page 6, lines 21-22 of the originally filed specification. Appropriate correction is required.

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9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claims 4, 8-9, 17, and 31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

11. Claim 4 recites "a member selected from the group consisting of..." it is unclear whether an "organic compound in urine and a body fluid" are a *member* – such limitation has been interpreted as "...reactive to an organic compound in urine or a body fluid." Appropriate correction is required.

12. Claim 8 recites "said detector comprises electrically conductive threads" – it is unclear whether these "electrically conductive threads" is/are the "electrically conductive material" of parent claim 7. Appropriate correction is required.

13. Claim 9 recites "said electrically conductive threads are configured in rows over said layer" and parent claim 7 recites "electrically conductive material in said layer" – are the electrically conductive threads over or in said layer, i.e. how can the electrically conductive threads be *both* within and over said layer? Appropriate correction is required.

14. Claim 17 recites "said mattress protector is of a woven fabric" - how can an impermeable layer (part of the mattress protector) be a woven fabric? Appropriate correction is required.

15. Claim 31 recites "said detector is disposed within said shielding cover" – however, parent claim 1 requires "a detector below said impermeable layer of said

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shielding cover". How can the detector be *both* within and below said impermeable layer? Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. Claims 1, 5-11, 16-17, 26, 28, and 31-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Janapol (US 3,384,908) in view of Votel (US 6,341,393).

Janapol teaches a mattress protector (S) to shield a mattress or mattress core from body fluids, the protector comprising: a shielding cover (A) to fit over the mattress, having a layer that is impermeable to body fluids and that is outermost in use when said shielding cover is fitted over said mattress (figure 1). However, Janapol does not teach a detector. Votel teaches a detector (e.g. 2614, 2616; col. 52, lines 18-46) within an absorbent layer of a sheet (2600). It would have been obvious to include the detector of Votel with the invention to Janapol (e.g. under the shielding cover and/or within said fabric/absorbent layer [B]). The motivation would have been to provide a means to determine whether said impermeable cover has a leak, thereby notifying appropriate action. Accordingly, Janapol as modified, teaches a detector below said impermeable layer of said shielding cover and above the mattress when said shielding cover is fitted over the mattress to detect body fluid that has penetrated said impermeable layer of said shielding cover.



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In regards to claim 28, said mattress protector comprises at least a portion of a casing that envelopes the mattress (Janapol: figure 1).

Regarding claim 31 (as best understood), said detector is disposed within said shielding cover.

With regards to claim 32, said detector is disposed below said shielding cover.

In regards to claim 33, Janapol teaches a layer (B) disclosed below said impermeable layer.

With regards to claim 5, said layer is absorbent (Janapol: col. 2, lines 45-47).

In regards to claim 6, said layer is made from a stretchable material (Janapol: col. 2, lines 45-47).

In regards to claims 7 and 37, said detector comprises electrically conductive material in said layer whereby said detector responds to changes in electrical conductivity to detect body fluid that has passed through said shielding cover (Votel: col. 52, lines 18-35).

With regards to claim 8, said detector comprises electrically conductive threads (Votel: 2614, 2616).

In regards to claim 9, the electrically conductive threads are configured in rows over said layer (Votel: see figure 156).

With regards to claim 10, said layer has a warp and a weft (Janapol: col. 2, lines 45-47) and said electrically conductive threads form at least one of said warp or said weft of said layer (Votel: see figure 156).

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Regarding claim 11, Janapol further teaches a processor (Votel: 2618) which monitors the electrical conductivity between neighboring conductive threads so that in the event of a leak of electrically conductive fluid into said mattress protector, a short circuit between threads will be detected and recorded.

Regarding claim 16, although Janapol as modified is silent to whether said conductive threads are included as a knitted fabric - it would have been obvious to include the conductive threads in a knitted fabric, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious mechanical expedient [citations omitted]. Therefore, it would have been obvious to include the conductive threads in a knitted fabric as an alternative means to provide a soft, comfortable, and flexible layer for the patient/user.

With regards to claim 38, said electrically conductive threads are configured in a matrix over said layer (Votel: figure 156).

In regards to claim 17, said mattress protector is of a woven fabric (Janapol: col. 2, lines 45-47) and slits are *inherently* provided in said woven fabric so as to allow for expansion.

In regards to claim 28, said mattress protector comprises at least a portion of a casing that envelopes the mattress.

Regarding claim 34, said detector is disposed in said layer (see above discussion with respect to claim 1).

With regards to claim 35, said layer is an inter-layer (Janapol: figure 2).

In regards to claim 36, said layer is an under-layer (Janapol: figure 2).

Regarding claim 26, Janapol as modified (see above discussion) teaches a mattress protector system, comprising: a mattress (Janapol: M); and a mattress protector (Janapol: S) fitted over said mattress, comprising a shielding cover (Janapol: A) to fit over said mattress, having a layer that is impermeable to body fluids and that is outermost in use when said shielding cover is fitted over said mattress; and a detector (Votel: e.g. 2614, 2616; col. 52, lines 18-46) below said impermeable layer of said shielding cover and above said mattress when said shielding cover is fitted over said mattress, to detect body fluid that has penetrated said impermeable layer of said shielding cover.

18. Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Janapol (US 3,384,908) in view of Votel (US 6,341,393), and in further view of Peters (US 5,575,025). Janapol as modified, teaches the invention of claim 33, including the limitations of claim 2 wherein said layer has a dye that is activated by a body fluid to provide a visual indication of presence of the body fluid (Votel: col. 52, lines 43-46). However, Janapol does not teach wherein the shielding cover is transparent. Peters teaches a mattress protector with a transparent cover (col. 2, lines 23-25). It would have been obvious to one of ordinary skill in the art to manufacture the cover of Janapol to be transparent. The motivation would have been to provide an easier and more convenient means to visually recognize when the mattress protector is wet. Therefore, it would have been obvious to modify the invention to Janapol as specified in claim 2.

With regards to claim 3, said dye is not reactive to water vapor (Votel: col. 52, lines 43-46).

In regards to claim 4, said dye is reactive to a member selected from the group consisting of at least one organic compound in urine and a body fluid (Votel: col. 52, lines 43-46).

19. Claims 12-13, 18-20, and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Janapol (US 3,384,908) in view of Votel (US 6,341,393), and in further view of Boone et al. (US 7,038,588). With regards to claim 12, Janapol as modified teaches wherein said processor is integrated with said mattress protector (Votel: figure 156); however, while Janapol as modified is silent to whether said processor is a microprocessor, such is well known in the art. Nonetheless, Boone et al. teach a monitoring/sensor system able to detect fluids from a patient (col. 7, lines 52-53, and as shown in 432) comprising a microprocessor (*necessarily* in member 48') adapted to be in communication with an external device (e.g. 118) to determine if any leak events have occurred. It would have been obvious to one of ordinary skill in the art to modify the processor of Janapol (as modified) to be a microprocessor as well as to include the external device as taught by Boone et al. as a reliable means to store, retrieve, and view patient data. Therefore, it would have been obvious to modify the invention to Janapol as specified in claim 12.

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In regards to claims 13 and 39, the microprocessor is within or below said shielding cover (Votel: figure 156) and is adapted to be in communication with an inductive link.

Regarding claim 18, Janapol as modified teaches a remote receiver (Votel: col. 52, lines 28-31) connected to a computer (Boone: 48'), wherein when said detector detects body fluid that has passed through said shielding cover, a signal is transmitted to said remote receiver.

With regards to claim 19, the mattress protector has a radio frequency transmitter to transmit the signal to the receiver (Votel: col. 52, lines 29-31). While Janapol as modified, does not teach wherein the transmitter is *inside* the mattress, such would have been within an ordinary level of skill in the art since it has been held that rearranging parts of an invention involves only routine skill in the art [citations omitted]. The motivation would have been to provide a means effectively "hide" the transmitter from a patient/user from *feeling* it (because of the thickness of the mattress); otherwise, if a patient did "feel" the transmitter (e.g. in the protector), it could result in the patient being uncomfortable. Therefore, it would have been obvious to situate the radio frequency transmitter inside the mattress as specified in claim 19.

In regards to claim 20, said computer is programmed to record a time and location when body fluid has passed through said shielding cover, so that suitable action may be taken (Boone: similar to 514).

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20. Claims 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Janapol (US 3,384,908) in view of Votel (US 6,341,393) as applied to claim 7, and in further view of DePonte (US 5,291,181) and Birch et al. (US 5,869,972). Janapol as modified, teaches the invention of claim 7. However, Janapol as modified does not teach wherein a microcontroller effects an irreversible change in a visible indicator. DePonte teaches a patient monitoring system comprising a detector that detects body fluid that has passed through a cover (12), and a circuit (80) that prompts a microcontroller to effect a change in a visible indicator (32). It would have been obvious to one of ordinary skill in the art to use the indicator means of DePonte with the invention to Janapol. The motivation would have been to provide an alternative means to detect wetness of the mattress protector. Therefore, it would have been obvious to modify the invention to Janapol as specified in claim 21. Furthermore, Janapol as modified does not teach wherein the change of the indicator is irreversible. Birch teaches to use a thermochromic strip (57) as an irreversible means to measure the temperature of a fluid. Because such measuring means is well known, it would have been obvious to one of ordinary skill in the art to include such means with the invention to Janapol (as modified), i.e. as the visible indicator means. The motivation would have been to provide an informative means (and record) of the *temperature range* of the wetness (i.e. fluid) of mattress protector. Therefore, it would have been obvious to modify the invention to Janapol as specified in claim 21.

With regards to claim 22, the visible indicator is visible from the outside of the mattress cover via an appropriate clear window.

21. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Janapol (US 3,384,908) in view of Votel (US 6,341,393), and in further view of Chase (US 6,618,880). Janapol as modified, teaches the invention of claim 26. However, Janapol as modified does not teach wherein the protector encases said mattress. Chase teaches an impermeable mattress protector (10) encasing a mattress (20). It would have been obvious to modify the protector of Janapol to encase the mattress as a means to *entirely* protect the mattress from soiling (e.g. on all sides). Therefore, it would have been obvious to modify the invention to Janapol as specified in claim 27.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JONATHAN J. LIU whose telephone number is (571)272-8227. The examiner can normally be reached on Monday through Friday, 8 am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Cuomo can be reached on (571) 272-6856. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JONATHAN J LIU  
Examiner  
Art Unit 3673

/JONATHAN J LIU/  
Examiner, Art Unit 3673